

**A study to correlate findings of carotid artery doppler in patients with central retinal artery occlusion and patients having severe retinal vessel tortuosity on clinical examination**

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**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

**Abstract**

**Introduction:** Central retinal artery occlusion is the sudden blockage of central retinal artery which causes sudden retinal hypoperfusion, progressive cellular damage, ischaemia of retina and sudden vision loss. Tortuosity of retinal vessels can be due to various causes like hypertension, diabetes or other vascular causes.

**Objective:**

1. To find correlation between CRAO and carotid artery doppler findings.
2. To investigate patients with severe retinal vessel tortuosity to ensure prompt diagnosis and timely treatment of the cause.

**Methodology:** This cross sectional observational study was conducted in 5 patients of central retinal artery occlusion and 5 patients with severe retinal vessel tortuosity who came to ophthalmology OPD of

Krishna Vishwa Vidyapeeth, Karad. The results were analyzed by a statistical test.

**Results:** Carotid artery thrombus was noted in 60% pts of CRAO i.e. pale retina with cherry red spot and was seen in 10% patients with severe vessel tortuosity.

Atheromatous plaques were seen in the common carotid and left and right internal carotid arteries of all patients of CRAO. Plaques were seen in 75% patients with severe retinal vessel tortuosity.

**Conclusion:** CRAO is a vision threatening disease which can be subsequent to occlusion of the carotid artery. Atheromatous plaques of common carotid and internal carotid arteries were seen in more than half patients with severe retinal vessel tortuosity. These patients were immediately referred to medicine and appropriate treatment (e.g. antiplatelet therapy) was started thus preventing life threatening conditions.

**Keywords:** Ischaemia, CRAO, Atheromatous

## Introduction

Central retinal artery occlusion is a form of acute ischaemic stroke causing sudden blockage of central retinal artery which leads to sudden retinal hypoperfusion, progressive cellular damage, ischaemia of retina and sudden vision loss. Tortuosity of retinal vessels can be due to various causes like hypertension, diabetes or other vascular causes. A Doppler scan measures the flow of blood. A normal result will typically show the blood moving at a rate of 30 to 40 centimeters per second.

## Objective

1. To find correlation between CRAO and carotid artery doppler findings.
2. To investigate patients with severe retinal vessel tortuosity to ensure prompt diagnosis and timely treatment of the cause.

Figure 1: Central retinal artery occlusion



Figure 2: Severe retinal vessel tortuosity

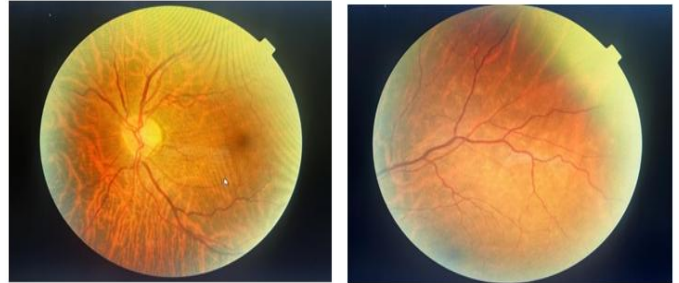
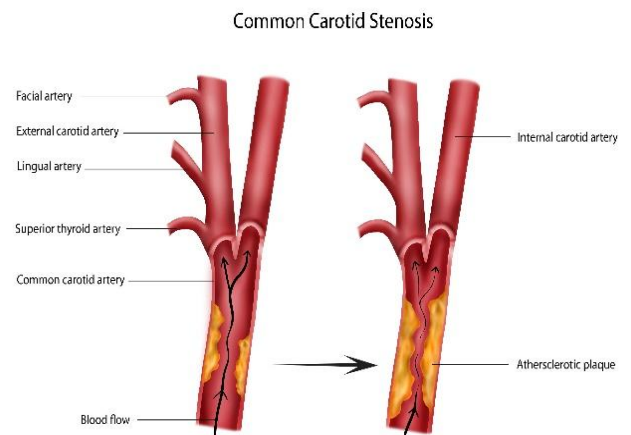


Figure 3:



## Methodology

This cross sectional observational study was conducted in 5 patients of central retinal artery occlusion and 5 patients with severe retinal vessel tortuosity who came to ophthalmology OPD of Krishna Vishwa Vidyapeeth, Karad. The results were analyzed by a statistical test.

## Patients Included

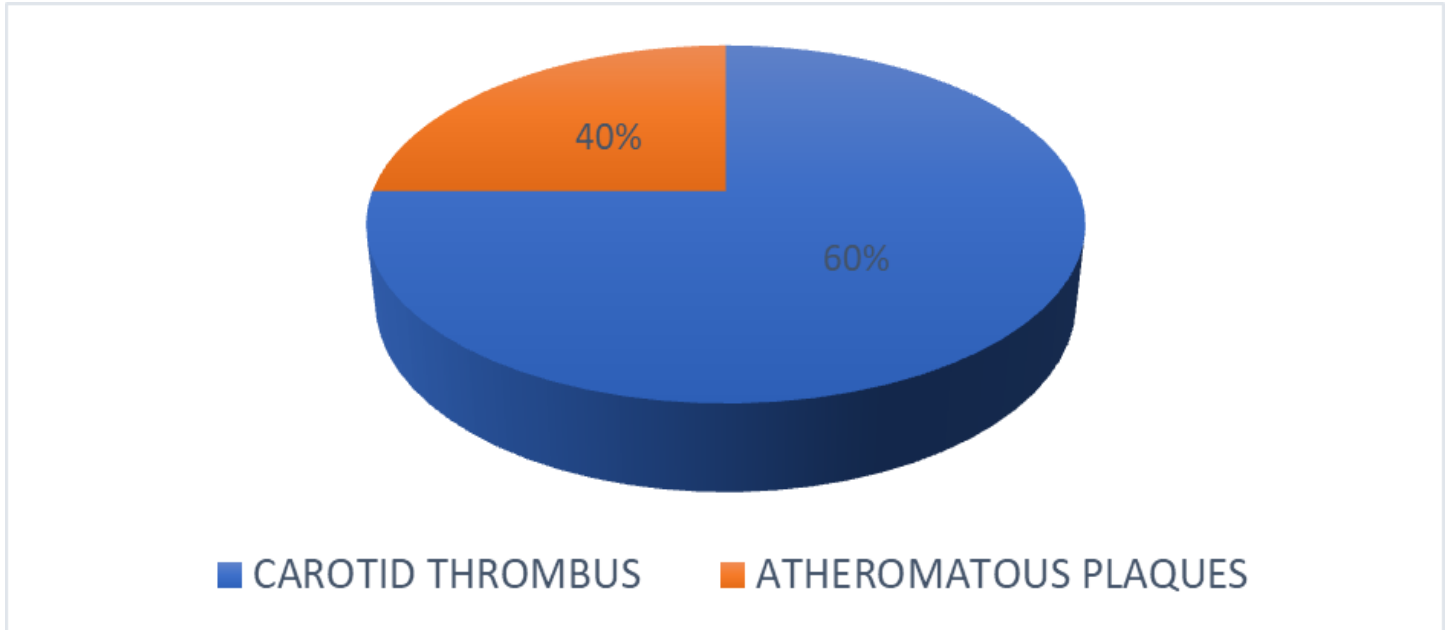
- Patients who came to opd with sudden diminution of vision
- Non diabetics
- Patients who had severe retinal vessel tortuosity on clinical examination

Careful detailed examination of all cases was done :

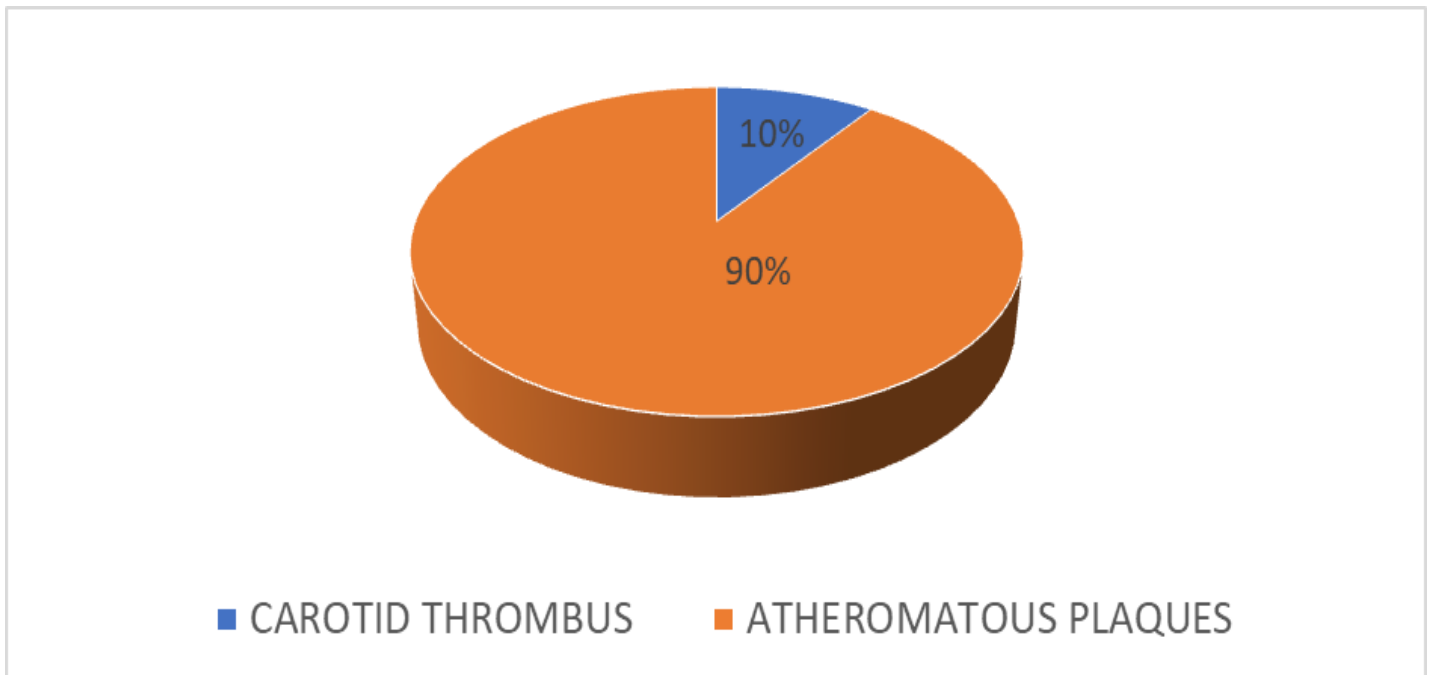
1. Visual acuity
2. History
3. Slit lamp examination

- 4. Fundoscopic examination with direct and indirect ophthalmoscope
- 5. Carotid doppler findings

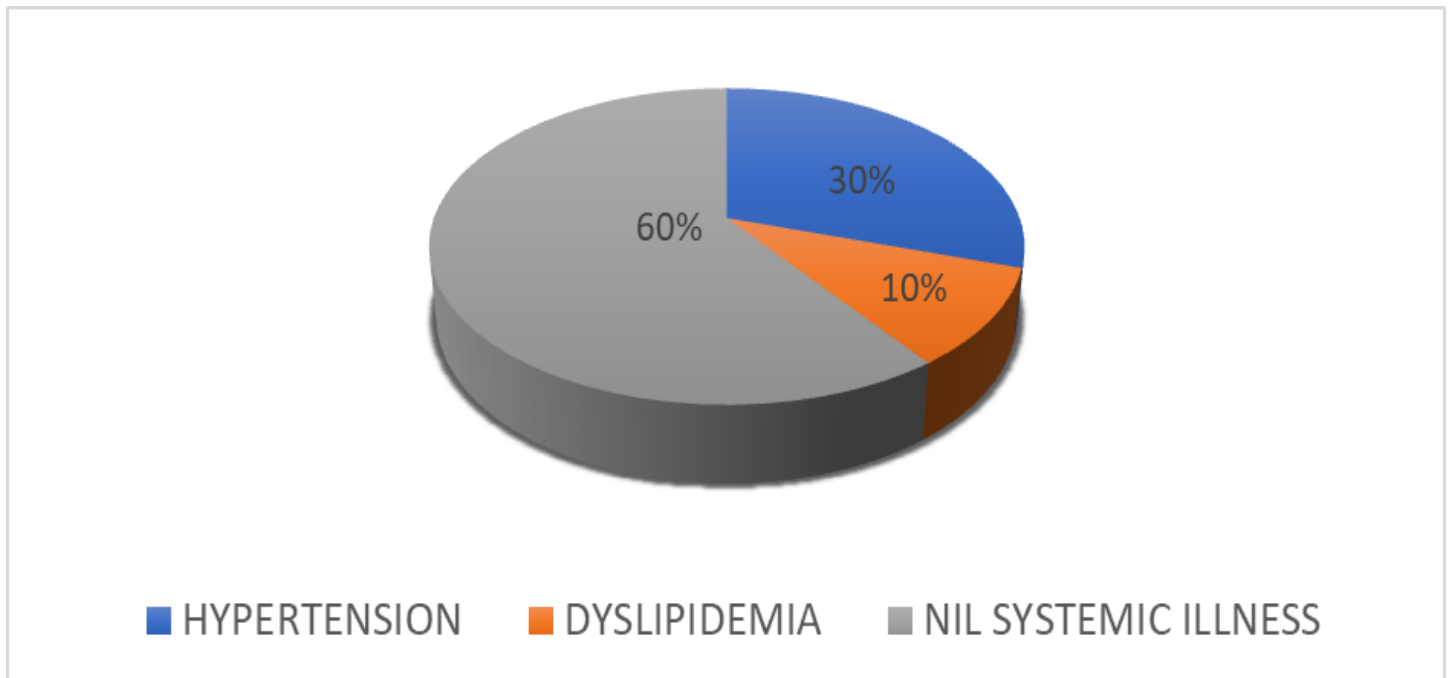
Graph 1: Crao Patients



Graph 2: PATIENTS WITH SEVERE RETINAL VESSEL TORTUOSITY



Graph 3:Comorbidities



### Results

Carotid artery thrombus was noted in 60% patients of central retinal artery occlusion.

Carotid artery thrombus was found in 10% patients with severe retinal vessel tortuosity.

Atheromatous plaques were seen in the common carotid and left and right internal carotid artery of all patients of CRAO

Atheromatous plaques were seen in 90% patients with severe retinal vessel tortuosity.

### Discussion

The mean age of the cases was 67.8 yrs.

Male to female ratio in CRAO pts was 2:3 and patients with vessel tortuosity was 4:1.

Hypertension, dyslipidemia was seen in 40% patients.

60% patients had no systemic illness. This showed that timely intervention in patients with no systemic illness could be life saving.

### Conclusion

CRAO is a vision threatening disease which can be subsequent to occlusion of the carotid artery.

Atheromatous plaques of common carotid and internal carotid arteries were seen in more than half patients with severe retinal vessel tortuosity. These patients were immediately referred to medicine and appropriate treatment ( e.g .antiplatelet therapy ) was started thus preventing life threatening conditions.

Interdisciplinary collaboration with specialists like physicians further enhanced patient management and visual prognosis.

### References

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